

Appl. S.N. 09/681,949  
Amdt. Dated February 5, 2004  
Reply to Office Action of Nov. 5, 2003

RD-29,070

### REMARKS/ARGUMENTS

This amendment is responsive to the Office Action mailed November 5, 2003 wherein claims 1-25 were rejected under USC §103 (a) in view of Jayaram et al. (PCT/US99/30753) in view of Dede (Congressional testimony, Joint Hearing on Education Technology in the 21<sup>st</sup> Century), "Industrial Haptics" press release ("Press Release"), Boeing/SensAble VR product as described in SensAble Press Release of Aug. 10, 1999 ("SensAble" and further in view of Nitta et al. (GB 2,327,289). In this amendment, claims 1 and 8 have been amended. No new matter has been added.

Claims 1-25 remain pending in this application. Reconsideration in light of the above amendments and the following remarks is respectfully requested.

Claims 1 and 8 have been amended to further recite converting the validated sequence into instructions. Support for this amendment can be found in the specification at, for example, paragraph 48.

Applicants respectfully traverse the rejection of claims 1-25 under 35 USC §103 over the Jayaram, Dede, Press Release, SensAble and Nitta references. Applicants respectfully submit that the references, taken alone or in combination, fail to teach, disclose or suggest the claimed invention, particularly as recited in amended independent claims 1, 8 and 18. To establish a *prima facie* case of obviousness, the claimed invention must be considered as a whole and the references must contain some suggestion or motivation to modify or combine the references. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F. 2d 680, 16 USPQ 2d 1430 (Fed. Circ. 1990).

Applicants respectfully submit that the applied references do not disclose each element of the present invention, specifically as claimed in independent claims 1, 8 and 18. Specifically, the present invention claims: generating at least one validated sequence of actions for a maintenance task, validating the sequence in a virtual environment to ensure the sequence could be performed by field service personnel, converting the sequence into instructions, and thereafter delivering instructions for the validated sequence. Nowhere do the applied references show, disclose or teach Applicants' generating, validating, converting and delivering steps as specifically recited in claims 1, 8 and 18, (claims 1 and 8, as amended). Further, nowhere do the applied references show a motivation or suggestion for combining the references as the Examiner states in the Office Action.

The Jayaram reference merely discloses a virtual assembly design system and method interaction in the virtual environment as a tool for design and assembly planning. Applicants

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respectfully reiterate that nowhere does the Jayaram reference teach, disclose or suggest the desirability of using the virtual assembly design methods for maintenance training and nowhere does the Jayaram reference teach or show a recognition of the problems involved in maintenance sequences, such as the need to verify that the sequence can be performed by field service personnel. Further, the Examiner stated in the Office Action that the Jayaram reference does not specify how the virtual reality system should inform the assembly information. Applicants will further add that the Jayaram reference does not show or disclose converting a sequence into instructions. The Dede reference merely discloses a fictional vignette presented in an educational learning context including haptics/virtual environment learners using selected multimedia for their learning. The Dede reference fails to teach, show or disclose any elements of the haptics/virtual system other than desired functionality, however the Dede reference also fails to teach, show or disclose validating a sequence for a maintenance task in order to ensure the sequence could be performed by field service personnel. The Dede reference does not disclose or suggest the considerations or problems associated with maintenance sequences that one skilled in the art might find relevant, such as human factors like ability to see a part or lift a part that are often encountered in maintenance by field service personnel. Thus, there is no teaching, disclosure or suggestion in Dede that one skilled in the art of developing haptics/virtual environments may find relevant. The Nitta reference merely discloses that assembly information is presented in a step-by-step manner. Nowhere does the Nitta reference show, disclose or teach validating a sequence for a maintenance task in order to ensure the sequence could be performed by field service personnel. Further, nowhere does the Nitta reference show or disclose converting the sequence into instructions that would be understandable by field service personnel.

The Press Release does not overcome any of the deficiencies of the above references. The Press Release and associated links referred to in the Office Action merely disclose various industrial haptics systems and applications for design, assembly and maintenance. However, nowhere does the Press Release disclose that a sequence is validated in a virtual environment to ensure the sequence could be performed by field service personnel. By contrast, the focus of the Press Release is to increase a designer's productivity and to simulate physical interaction using advanced haptics devices. Nowhere does the Press Release show, disclose or teach validating a sequence to ensure the field personnel can perform the sequence. Further, nowhere does the Press Release disclose or teach converting the sequence into instructions. Thus, the Press Release does not disclose every element of Applicants' claimed invention and does not teach or suggest such steps.

The SensAble reference does not overcome any of the deficiencies of the above references. The SensAble reference merely discloses a virtual prototyping system using haptics and further teaching that the system may be used for maintenance .

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Applicants interpret the Office Action as stating that virtual design tool of Jayaram be combined with the teachings of a virtual training environment by Dede or that the design tool of Jayaram be combined with the teachings of step-by-step instructions of Nitta in order to obtain Applicants' invention. The Office Action does not specify how the Press Release or SensAble references could be modified to obtain Applicants' invention. Applicants also interpret the Office Action as attempting to combine the design tool of the Jayaram reference in other combinations with features of the Dede and Nitta references. Applicants respectfully submit that no reasonable combination of the applied references would obtain Applicants' claimed invention. "In determining the differences between the prior art and the claims, the question under 35 USC 103 is not whether the differences themselves would be obvious but whether the claimed invention as a whole would have been obvious." MPEP 2141.02 (emphasis in original). Therefore, it is well established that the claim must be evaluated as a whole. Further, it is "impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious..." *In re Fritch*, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992). The present invention, as recited in amended independent claims 1, 8 and 18 and claims dependent therefrom, is particularly well-adapted to resolve the problems associated with providing maintenance instructions and/or training to field service personnel. The independent claims each recite validating the sequence of a maintenance task in the virtual environment in order to ensure the task can be performed by field service personnel, converting the sequence into instructions and thereafter delivering the instructions to the field service personnel. Nowhere do any of the applied references teach Applicants' validating step, converting step and delivering step as particularly recited in Applicants' claims 1, 8 and 18. Further, Applicants submit that one skilled in the art could not make a reasonable combination of the applied references other than by using Applicants' invention as a template. Therefore one skilled in the art would not be motivated to combine any of the teachings of the applied references since the teachings of the applied references do not suggest a modification or combination. Further, Applicants respectfully submit that the claimed invention and prior art were not considered as a whole. Applicants respectfully submit the Examiner has failed to provide a *prima facie* case of obviousness since it is improper to combine the features of the applied references using Applicants' claims as guidance. Applicants respectfully submit that there is no teaching, suggestion or motivation found in the applied references to suggest a reasonable combination and further the applied references, taken alone or in combination, do not show, suggest or teach Applicants' claimed invention. Therefore, Applicants' respectfully submit that claims 1-25 are allowable and request that the rejections under 35 USC §103 (a) be withdrawn.

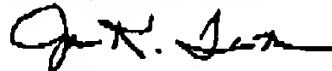
In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

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Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

  
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